

REPLIES TO PRE BID QUERIES LOT-1 DATED - 09.04.2022

NIT NO : PNMM/PC-183/E- 4013/NCB

SUB : SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF FLARE SYSTEM

S.NO.	SECTION NO.	PAGE NO.	CLAUSE NO.	SUBJECT	PRE BID CLARIFICATIONS	PDIL REPLY
1	IV	263	57	Soil Investigation Report	The clause mentions that the NIT contains the Soil investigation report, but on examination of the tender document we have found that the soil investigation report is not included. Please provide the soil investigation report, so that we can estimate the pricing in an effective manner.	Soil investigation report of flare stack area is not available. However, indicative soil data for near by area is attached herewith only for reference to the bidders. Whereas the successful bidder has to conduct soil investigation afresh for design and execution purpose.
2	IV	339	Table 1	Process conditions	Please provide the operating pressure & temperature at flare package battery inlet for all flares. Not clear from the summary provided	Please refer table-1 for temperature data & table-4 for pressure for the respective flare stream.
3	IV	339	Table 1	Design case	For design case, Simultaneous scenario to be considered or the maximum case of individual stream. Please confirm	Please refer table 4 & 5 in combined for design load of Flare stack. However, table-5 is under review & shall be amended accordingly. Simultaneous scenario shall be governing for designing of respective flare stack by bidder.
4	IV	347	Table 5	Design conditions	Gas cases mentioned in Table-5 will be followed by us for design of flare system	Refer table 4 & 5 in combined. Amendment of table-5 shall be issued accordingly.
5	IV	349	4	Scope of supply	Please confirm if the KOD pumps are in Bidder's scope. The scope of supply doesn't mention the same.	Bidder's understanding is correct that KOD pumps are in bidder's scope. Amendment shall be issued, if required.
6	IV	349	4	Suitable KOD for SRU flare steam	Please clarify more on this requirement.	Please refer table-1 for SRU stream composition & operating conditions. Accordingly bidder to decide its location as per available pressure (as per table-4) at their B/L.
7	IV	349	4	KOD with steam heating coils	Please clarify more on this requirement. However, we don't foresee the requirement of steam coil heating for KODs	Shall be decided during detail engineering.
8	IV	350	4	Ignition panel	The operation & monitoring of FFG ignition panel shall be from DCS. The local control panel shall be provided with push button and indication lamp for local operation.	FFG System signal goes to relay based Flame Front Generator panel. From FFG panel hardware (Pot free) contact provided to PLC to controlling & monitoring purpose. Rest all signal directly goes to same PLC. The PLC shall be supplied by bidder.
9	IV	350	4	Infrared CCTV	Please specify the no. of Infrared CCTV required	No. of CCTV shall be provided during detail engineering by PMC/owner.
10	IV	350	4	Lightning Arrestor	Lightning arrestor is not required as complete system is a steel structure and continuity shall be maintained throughout the structure	Lightning Arrestor shall be provided in line with the NIT.
11	IV	350	4	Steam/heat tracing	Steam/heat tracing will not be applicable	NIT shall prevail. Steam traced flare header shown in Schematic. Please refer schematic.
12	IV	350	4	Ignition panel	Single FFG panel shall be used for all flares.	Bidder to provide dedicated FFG Panel for each flare system.
13	IV	351	4	Dispersion Analysis	Please provide the cases to be considered for Dispersion analysis	Refer composition of flare streams mentioned in table-1 for dispersion analysis for the respective flare stack. Shall be decided during detail engineering.
14	IV	352	5	Scope of services	Scope of fire water system?	All required fire water facilities inside vendor's battery limit shall be in bidder's scope. Tapping for required fire water from the existing ring header network shall be in bidder's scope alongwith all the required fittings, isolation valve etc.
15	IV	353	5.2	Ground Winch	Ground winch has been asked for tip replacement. Will this be electrical type or manual type?	A set of ground winches (electric type) with steel wire rope shall be used for replacement of the tip.
16	IV	364	6.4.1 (i)	Bidder to check the header sizes	Please clarify more on this requirement.	Although flareheader piping is in PDIL/owner's scope, bidder also may check its sizes based on the details mentioned in table-1.
17	IV	365	6.4.2	LPG Fuel Gas	LPG manifold along with necessary instrumentation and controls shall be provided. However LPG cylinders shall be provided by others. Also please provide the backup hours to calculate the no. of cylinders. We understand this is required during start-up only	NIT shall prevail. LPG cylinders, LPG manifold along with necessary instrumentation and controls is in bidder's scope. Flare tip pilot shall remain lighted during fuel gas failure. This will be accomplished through fuel gas backup through LPG cylinders coming online AUTOMATICALLY.
18				Scope of work - Structural	We understand that complete Pipe rack is in TFI/cleint's scope. Please confirm.	TFI shall provide Pipe Rack upto Package Battery Limit. Bidder shall provide their pipe rack and structurals, as per requirement of their engineering within their package battery limit.
19				Scope of work - Civil	Civil scope mentions "Flare stack area and 3 M all around shall be properly paved". We understand this means 3 M around Derrick structure supports. Please confirm.	Paving to be provided 3m all around Derrick type flare stack and under piperacks if any and 2m around equipment foundations also.
20	IV	351	4	Scope of work - Civil	We understand the civil scope shall be limited to the foundation of new equipments only.	All equipment foundations along with foundation of Pipe supports/sleepers, pipe racks, pits and Flare stack system shall be in bidder's scope. Please Refer NIT.
21				FFG Location	Client has mentioned location of FFG shall be near to the base of stack at safe and sterile location. Will it be outside sterile radius of 90-100m?	Bidder to decide based on the Plot plan mentioned in the tender. Ignition panel should be installed at ground level at a safe distance from the flare stack. Location of FFG panel shall be such that the pilot flame is visible from it.
22				Scope of Work - Instrumentation	Area Lighting scope is not defined in SOW. Is that our scope?	Yes, Area Lighting within the Battery Limit of the Flare Package shall be in the scope of the bidder.
23				Scope of Work - Instrumentation	Battery limit indicated in overall layout is shown within 35m from center of flare stack. Shall we consider this for electrical and instrumentation cabling battery limits also, or do we need to consider cables and trays up to CCR and electrical substation?	Consider cable & Trays upto CCR and electrical substation. Owner will provide UPS power supply 2 nos. feeders at 240V and 1 Nos. feeder at 115V from nearby control room and further distribution shall be in LSTK Contractor's scope. Power for Lighting and other Electrical Loads shall be tapped from Switchboards located at Cooling Tower MCC Room. Bidder shall indicate details of loads in Technical Bid itself, so that suitable feeders can be considered at Owner's Switchboards at Cooling Tower MCC Room. Tapping of power supply from owner's feeder (including supply of all required material), structural supports for cable tray, cable trays, cables, cable termination etc. shall be in LSTK Contractor's scope. Further distribution to equipment through proper type and size of cables, their supply, erection, testing and commissioning etc. shall be in LSTK Contractor's scope.
24				Scope of Work - Instrumentation	SOW indicates that "FFG logic need to be implemented in existing PLC by the bidder and it needs to be able to communicate with DCS on Modbus TCP/IP. For this, all accessories along with mandatory spares to be provided by bidder." Normally, we only provide FFG logic in the form of Controls Narrative, Cause and Effect drg. and Logic Drg. Balance implementation and necessary hardware in PLC / DCS side is taken care by others. Shall we proceed with same philosophy?	Scope of Supply of PLC shall be in Bidder scope. All Logics shall be implemented in the PLC supplied by Bidder. PLC shall be installed in CCR-2 i.e. Ammonia Urea control room. FFG System signal goes to relay based Flame Front Generator panel. From FFG panel hardware (Pot free) contact provided to PLC to controlling & monitoring purpose.
25				Scope of work	Is the Cabling support from Ignition panel to control unit in bidders scope?	Yes. It shall be in bidder's scope.
26	Plot Plan			Section M-M, Note 9	Note 9 in Plot Plan is missing, please provide the same. Section M-M of pipe rack is not present in Plot plan. Please provide the same	Note-9 deleted. Bidder to refer section M-M (Attachment-1) in revised plot plan no. PC183-0000-0001 Rev.1_OP. Amendment for revised plot plan and attachment-1 shall issued, if required.
27	Plot Plan			Pipe support	Piping support type? Trestle or pipe support?	Bidder shall provide their supports and structurals, as per requirement of their engineering within their package battery limit.
28	Plot Plan			Approach road	Approach road is not shown in plot plan? Please provide the mark up on plot plan.	Plot Plan is under review. Amendment, if required, shall be issued shortly. Bidder shall provide their all roads as per their engineering within their package battery limit based on NIT conditions.
29	Plot Plan			Native file	Please provide native file for plot plan.	Plot Plan drawing is under review and native file, if required, shall be provided shortly.
30	Plot Plan			KOD Location	Please specify the location of KODs in the Plot plan	Bidder shall provide their all equipments piping systems, supports, structurals, accessories, etc. as per requirement of their engineering within their package battery limit.
31				General - Layout	Please provide the tie-in points for utility and the flare headers.	Tie in connections are under review and shall be provided shortly, if required.
32				General	Please provide the Flare package layout showing all the tie-in details, Equipment, approach roads, FFG locations, Electrical power supply tie-in and control cabling as per the scope of work for Flare package bidder,	Drawing is under review. Amendment, if required, shall be issued shortly. Flare package layout to be provided by bidder. Bidder shall provide their all facilities as per requirement of their engineering within their package battery limit based on NIT conditions.
33	VI	546	13	Waste and debris disposal	Please specify the designated location for Waste and debris disposal. And how far will it be from Flare stack location	Beyond 5km. However, it is Bidder's responsibility to visit the site for getting all informations subject to availability.
34				General - Scope of work	Pond is not in bidder's scope. please confirm	Yes. It is outside bidder's scope of work.
35				Proposed Pond	Will the work for proposed pond be executed simultaneous to the flare installation work. Kindly share the plan for Pond work. As that would impact the execution plan for Flare installation.	There will be simultaneous work for ETP pond as well as Flare system. As of now execution plan for ETP pond is not available. Bidder may consider simultaneous work by different agencies.
36				General	Please provide the Flare package layout showing clearly defined battery limit for the bidder.	Flare package layout to be provided by bidder. For B/L refer plot plan.
37		4 of 34	1.0	Flare Stack Items	(ii) Molecular seal: Considering the size of the Acid Gas Flare Stack, we will consider velocity type Integral Gaseel to avoid air ingress inside the flarestack. Please confirm. (vii) Main burners: Repeated, similar to Flare tip (i).	ii) Molecular seal is preferred. Shall be decided during detail engineering. vi) Noted.
38		8 of 34	Note-3	Flare gas Flow Rate	As per the note-3, the flow rates mentioned in the Table-1 are preliminary and the same will be finalized by compressor vendor. However, we request you to please confirm the final flow rate as the same forms basis for the flare system design calculations.	Data received from ISBL contractor alongwith the notes mentioned. However ISBL contractor has considered adequate margins, hence bidder may consider the table-1.
39		9 of 34	-	Location of flare gas connection	We are not clear on this requirement (stream having low pressure shall be directly connected on the top of the flare stack riser of the dedicated flare stack), kindly explain. Considering the possibility of presence of condensate in the flare gas stream, we request you to please advise suitable arrangement to be considered for the low-pressure gas stream; as provision of the Flare KOD at elevation will not be feasible considering the operation & maintenance aspects.	Bidder to decide based on the available pressure of the respective streams at their battery limit. Shall be decided during detail engineering.
40		10 of 34	-	Seal Drum	Please note that Water seal drum is not applicable to the present scope considering the flare gas composition. Please confirm.	Shall be decided during detail engg.
41		12 of 34	Table-4 (sr. no. 4 & 5)	Pressure at vendor B/L.	Please note that the pressure available at B/L for the Dry seal flare gas (from CGP and from A& U) is specified as 1.01 bar (absolute?) which, we understand, is less than atmospheric pressure & not suitable for the proper flare system design. Please review and confirm the available pressure drop to enable us to further proceed with flare system design.	Under review. Amendment shall be issued, if required.

42	14 of 34	Table-5	Fuel Gas continuous flow rate	Please note that as per the table-1, fuel gas maximum flow rate is 42,338 kg/hr. However, as per the table-5 continuous flow rate of fuel gas is 52,142 kg/hr. Please confirm the final flow rate.	Please refer table-1. It is 42338 Nm ³ /hr converted to kg/hr (i.e. 52142 kg/hr) based on the composition provided. Bidder may also check at their end. NIT Conditions shall prevail.
43	14 of 34	Table-5	Ammonia Flare Gas from CGP	Please note that total ammonia flare gas from CGP as per Table-5 is 1,30,776 kg/hr. However, as per table-1 PDC Nor. Flow is 29,073 kg/hr. Please confirm the final flow to be considered. Also, please provide composition, pressure & temperature for the flare gas flow rate of 1,01,703 kg/hr.	It will be 295273 kg/hr (266200+29073=295273) Regarding, Amendment shall be issued accordingly.
44	16 of 34	4.0	Acid Gas Riser MOC	We understand to consider Acid Gas Flare Stack Riser & wet acid flare stream header of SS 304 MOC. Please review & confirm.	Refer clause-6.3 of sec-VI for MOC of acid gas flare stack riser. Refer Table-1 for MOC of wet acid flare header (SS-316L).
45	17 of 34	4.0	Molecular Seal	(ii) Molecular seal: Considering the size of the Acid Gas Flare Stack, we will consider velocity type Integral Gaseel to avoid air ingress inside the flarestack. Please confirm. (vii) Main burners: Repeated, similar to Flare tip (i).	ii) Molecular seal is preferred. However bidder to decide as per their best engineering practice. vi) Noted
46	17 of 34	4.0	Infrared CCTV	We understand to provide Infrared CCTV camera for monitoring of the Main Flare Flame. Please review & confirm. Also, we request you to please provide the Technical Specification, Datasheet and other specification for the Infrared CCTV Camera for our further consideration.	IR CCTV camera to be mounted remotely at suitable location for physical flame visibility in the Central Control room of Ammonia Urea Plant. The CCTV camera shall be connected to the existing CCTV network provided by Client. All cables and its accessories upto CCR shall be in Bidder scope. Data sheets and Technical specification shall be submitted by Bidder. The same shall be reviewed and commented by owner/PMC.
47	17 of 34	4.0	Lightning Arrestor	Please note that flare stack made of steel – a good conductor of electricity. Hence, separate lightning arrestor is not required. However, we confirm to provide earthing clits at the flare stack base. Please review & confirm.	Lightning Arrestor shall be provided in line with the NIT.
48	17 of 34	4.0	Steam/Heat Tracing	Please advise the line to be considered for steam/heat tracing. As per the schematic arrangement for flare system package (OSBL), we understand to consider steam tracing for the wet acid flare gas header from CGP, SRU Flare Gas header up to stack base. Please confirm.	NIT shall prevail. Steam traced flare header shown in Schematic. Please refer schematic.
49	17 of 34	4.0 (d)	Alternate Arrangement for pilot ignition	As per the Schematic Arrangement for Flare System Package (OSBL), we understand to consider Flame Front Generator (FFG) Panel for the ignition of the pilot burners. Please advise if secondary back-up ignition system is required for pilot light-up.	NIT shall prevail. Please refer clause 6.0 of sec-VI. Secondary back-up ignition system is required for light-up.
50	18 of 34	4.0 (h)	No. of K.O. Drums	Please advise exact requirement for the K O drums to be considered for the entire package.	Refer table-1 for respective flare composition. Based on the composition provided condensate is there, hence K O drums are required.
51	18 of 34	4.0 (k)	Structural painting with chlorinated rubber	Please advise detailed painting scheme with specifications.	Kindly ignore the referred clause and refer TS2001 Painting Specification. Amendment shall be issued accordingly.
52	18 of 34	4.0 (l)	Dispersion analysis	For the required dispersion analysis, sophisticated software (like PHAST DNV) is required which is, due to its complexity, normally outsourced (done by dedicated agencies). In view of the same, we request to please advise minimum height requirement considering allowable Ground Level Concentration of pollutants/ toxic gases like HCN and preliminary dispersion report to form a common basis for the tendering purpose.	Under review. Amendment if required shall be issued accordingly.
53	19 of 34	5.0 (q)	Pumps for Flare KOD	As per this clause, we understand that Flare KOD shall be equipped with pumps with 1 working & 1 stand-by philosophy. Pump capacity shall be equivalent to the maximum incoming liquid flow rate. Pump shall be provided with Local Control Panel (LCP) with auto start facility. However, we request you to please provide the Process Datasheet & applicable Technical Specification for Flare KOD pumps for our further consideration.	Pump capacity bidder to decide based on the tabular data mentioned in the tender. Applicable pump is not process pump therefore it may be design with manufacture's standard.
54	19 of 34	5.0 (r)	Flaring without support/ assist gas	Considering the composition of the flare gas as provided in Table-1, assist gas would be required for the specified gas streams for LHV enrichment to sustain combustion, as per the API 521 stipulation. Please review & confirm the availability of the assist/support gas.	Shall be decided during detail engg. However, requirement of assist gas shall be provided by bidder in their technical bid.
55	19 of 34	5.0 (s)	Expected water quality parameters	We are not clear on this requirement, please clarify. Normally such data are unpredictable and cannot be furnished.	Waste water pumping system is in bidder's scope. Bidder may provide waste water quality during detail engineering. However, tentative water quality may be furnished by bidder in their bid.
56	20 of 34	5.1 (f)	Heat Shield at first platform	Considering the type of flare supporting structure (i.e. fixed type), heat shield is not applicable / provided as no personnel are allowed to climb the flare stack / remain inside the sterile area during flaring. This may please be noted & confirmed.	Bidder to consider as per relevant standard codes & practices.
57	20 of 34	5.1 (i)	Combustion efficiency: Required 99% & calculated	This stipulation is not applicable considering the present application containing non-combustible and inerts.	NIT shall prevail.
58	20 of 34	5.2 (d)	Location of FFG Panel	We understand to locate the FFG Panel outside the sterile area considering the presence of operator. Please confirm.	Bidder to decide based on the Plot plan mentioned in the tender. Ignition panel should be installed at ground level at a safe distance from the flare stack. Location of FFG panel shall be such that the pilot flame is visible from it.
59	21 of 34	5.2 (l)	Electronic Spark Ignition	Please confirm the scope of High Energy Ignition (HEI) System for the pilot ignition as specified in this clause. We understand to provide Auto/Manual High Energy Ignition (HEI) System with back-up Manual FFG (as specified in the schematic diagram of the flare system) for flare gas streams having greater than 1% H ₂ S. Please review and confirm.	Bidder's query is not clear. NIT shall prevail.
60	21 of 34	6.1 (iii)	Allowable Radiation	Please provide the locations (distance/height) of the fences of remote flare area & complex buildings from the flare system, where the specified radiation limits need to be reviewed.	Plot Plan is under review. Amendment, if required, shall be issued shortly.
61	22 of 34	6.3.1	Flare Tip MOC	Considering the service requirement, Flare tip main shell MOC shall be SS 310; the flare tip inlet flange shall be in SS 316 MOC; please confirm.	NIT shall prevail. Bidder to decide MOC as per the composition & design condition of API-537.
62	23 of 34	6.3.2	Connection for Nitrogen addition	The nitrogen addition connection for the seal purging is provided at base of the flare stack, which may please be noted & confirmed.	Noted.
63	24 of 34	6.3.3	Acid Gas Flare Stack MOC	We understand to consider Acid Gas Flare Stack Riser & wet acid flare stream header of SS 304 MOC. Please review & confirm.	Refer clause-6.3 of sec-VI for MOC of acid gas flare stack riser. Refer Table-1 for MOC of wet acid flare header (SS-316L).
64	24 of 34	6.3.4	Ammonia Flare KO Drum	We understand to consider the vertical type knock out drum which will be located at the stack base for Ammonia Flare Stack. Please confirm.	Shall be finalized during detail engineering.
65	26 of 34	6.3.4	KO Drum for SRU Flare header	We are not clear on this requirement (stream having low pressure shall be directly connected on the top of the flare stack riser of the dedicated flare stack), kindly explain. Considering the possibility of presence of condensate in the flare gas stream, we request you to please advise suitable arrangement to be considered for the low-pressure gas stream; as provision of the Flare KOD at elevation will not be feasible considering the operation & maintenance aspects.	Bidder to decide based on the available pressure of the respective streams at their battery limit.
66	26 of 34	6.3.4	Flare KOD Pumps	As per this clause, we understand that Flare KOD shall be equipped with pumps with 1 working & 1 stand-by philosophy. Pump capacity shall be equivalent to the maximum incoming liquid flow rate. Pump shall be provided with Local Control Panel (LCP) with auto start facility. However, we request you to please provide the Process Datasheet & applicable Technical Specification for Flare KOD pumps for our further consideration.	Pump capacity bidder to decide based on the tabular data mentioned in the tender. Applicable pump is not process pump therefore it may be design with manufacture's standard.
67	27 of 34	6.3.5.1	IR Camera	As per the clause no. 7.0 of "Contractor Scope of Work – Instrumentation", we understand to provide one no. of IR CCTV Camera for the main flare flame visibility for each flare system. Please confirm.	Quantity of CCTV shall be finalized during detail engineering
68	28 of 34	6.3.5.1	PLC installation	We understand to consider PLC based Ignition Panel for controlling & monitoring purpose shall be located inside the Central Control Room (CCR-2 A&U Control room). Please provide the tentative distance of Central Control Room from flare area.	Please refer area plot attached with the Tender. However distance shall be tentatively 1500 meter
69	3 of 51	1	Single PLC for Flare Package	We understand to consider single PLC System for all three nos. of FFG Panel offered for each flare system. Please confirm.	Noted.
70	3 of 51	1	Drying Unit	Please note that Drying Unit is not included in our scope. Please confirm.	Drying unit is not in bidder scope.
71	4 of 51	1	Control system Make	We understand to provide the control system for flare package of the same make as existing DCS/ESD. Please provide the details of existing DCS/ESD control system.	Details shall be provided during detail engineering
72	5 of 51	1	UPS Power supply	We understand that power shall be tapped from owner's Offsite & Utilities Substation & further distribution shall be in LSTK contractor's scope. Please provide the tentative distance of Offsite & Utilities Substation from Flare Area.	Owner will provide UPS power supply 2 nos. feeders at 240V and 1 Nos. feeder at 115V from nearby control room and further distribution shall be in LSTK Contractor's scope. Power for Lighting and other Electrical Loads shall be tapped from Switchboards located at Cooling Tower MCC Room. Bidder shall indicate details of loads in Technical Bid itself, so that suitable feeders can be considered at Owner's Switchboards at Cooling Tower MCC Room. Tapping of power supply from owner's feeder (including supply of all required material), structural supports for cable tray, cable trays, cables, cable termination etc. shall be in LSTK Contractor's scope. Further distribution to equipment through proper type and size of cables, their supply, erection, testing and commissioning etc. shall be in LSTK Contractor's scope. Please refer area plot attached with the Tender. However distance shall be tentatively 1500 meter.
73	11 of 51	5.0	Analyzers & Analyzer System	Please confirm the scope of Analyzer. Also, Please provide the Datasheet & Technical Specification for the Analyzer.	Scope of Analyser if any shall be worked out by Bidder .
74	12 of 51	6.0	SIL Certification for solenoid valve	Please note that solenoid valve used in our FFG Panel is of size 1" & SIL 3 certification is not available for the same size. Hence, we confirm to provide SIL 2 certification for the solenoid valve used in FFG Panel. Please confirm.	Please follow Tender requirement
75	16 of 51	7.0	Relief Valve for Pilot Gas System	Please note that Relief Valve for pilot gas system is not required in Pilot gas piping as the pilot gas line outlet is open to atmosphere.	Noted.
76	16 of 51	7.0	Flame Arrestor	As per our proprietary design standard for FFG panel, we do not provide flame arrestor in FFG Panel which may please be noted & confirmed.	Please follow Tender requirement
77	17 of 51	7.0	Common Flame Front Generator	Please note that as per the schematic diagram for flare system package, we understand to provide dedicated FFG Panel for each flare system. Please reconfirm the requirement.	Bidder to provide dedicated FFG Panel for each flare system. Bidder's understanding is correct.
78	17 of 51	7.0	IR Scanner	We understand to provide IR type Scanner for the pilot flame monitoring. However, please note that IR scanner can only be installed in either North or South direction due to interference from sun light. Hence, we request PMC/Owner to confirm the space availability in North/South direction at 100m for the installation of the IR type Scanner. Also, please note that all pilot flame may not available for the monitoring purpose due limitation of IR Scanner as explained above.	IR type Scanner for all the pilot flame monitoring shall be required.

Technical Specification for Supply, Installation, Testing & Commissioning of Flare System (Document No.: PC183-E-4013-SEC IV)

Contractor Scope of Work – Instrumentation (Doc. No.: PC183-E-4013-SEC VI-9.0)

Contractor Scope of Work – Instrumentation (Doc. No.: PC183-E-4013-SEC VI-9.0)

79		17 of 51	7.0	IR CCTV	As per the clause no. 7.0 of "Contractor Scope of Work – Instrumentation", we understand to provide one no. of IR CCTV Camera for the main flare flame visibility for each flare system. Please confirm.	Quantity of CCTV shall be provided during detail engineering
80		17 of 51	7.0	Connection to existing CCTV network	Please provide the tentative distance of existing CCTV network to be considered for connection to new IR CCTV Camera connection.	Quantity of CCTV and Existing CCTV network for integration shall be provided during detail engineering
81		30 of 51	13	FAT	We confirm to include Dry Spark Test of FFG Ignition Panel at our shop. All the inspection & testing activities shall be as per the approved ITP. Please confirm.	Noted
82		30 of 51	15	Annual Maintenance Contract for FFG systems	Considering present tender provisions, this shall be taken up separately.	AMC shall be provided for FFG system as per commercial contracts.
83		42 of 51	Annexure-3	Control System Package	We understand to provide 1 no. of Operator station as specified in Annexure-3 of "Contractor Scope of Work – Instrumentation" with 1 no. of extra keyboard to be installed in the same control system. Please review & confirm.	1 no. OS with dual LED monitors and 1 no. OS cum Engineering having the feature of SOE also shall be provided by the bidder.
84		--	--	General	Please confirm exact quantum for the scope of civil & building work.	Kindly refer NIT.
85	Construction/ erection, Pre-commissioning, commissioning & start up (Doc. No.: PC183-E-4013-SEC VI-14.0)	--	--	General	The tender documents do not include any report regarding the terrain, soil or FGL. In view of the same, kindly advise what levels to be considered for our design / estimates purpose. Please furnish Geo Technical Report for the flare package site.	Soil investigation report of flare stack area is not available. However, recommendation of soil investigation for nearby area is attached herewith only for reference purpose to the bidders. Please note that successful bidder has to conduct soil investigation afresh for design and execution purpose.
86		--	--	Ground Water Table (GWT)	Please review & advise the value of Design ground water table to be considered for the foundation design.	Recommendation of soil investigation for nearby area is attached herewith only for reference purpose to the bidders. Please note that successful bidder has to conduct soil investigation afresh for design and execution purpose.
87		--	--	Reinforcement curtailment	For Pile coming under tension/axial & compression loads, the reinforcement curtailment shall be permitted below the point of fixity as normal practice, please review & confirm.	As per design requirement and IS codal provisions
88		--	--	Crack width calculation	We understand that the foundation for the flare structure & flare equipment involved on this tender are not actually falling under liquid retaining type & hence no requirement for checking & applying the Crack width calculation is truly applicable, kindly review & advise if our understanding is true. Minimum reinforcement placement as per applicable code shall however be strictly followed.	All Design checks shall be as per IS codal provisions and same will be finalized during detail engineering.
89	(Doc. No.: PC183-E-4013-SEC VI)	1 of 2	16.2	Plant Trial Runs (Performance Testing)	Generally, for the flare system, a TRUE Performance & Guarantee Test is not feasible as this requires client to provide the actual flare gas peak flow conditions & all other parameters/ measurement instruments. Generally certain parameters of interest are discussed & mutually agreed with client and only such parameters are then monitored during the actual commissioning at site for the guarantee purpose. We generally include the following: a) Proper functioning of ignition system b) Proper operation of the flare system like stable pilots For the above listed tests, no analytical / measuring instruments are required. However, in case of any measuring instrument requirement, the same shall be provided by Purchaser. The Performance guarantee test shall be conducted within maximum 3 months from the date of commissioning.	NIT shall prevail. Refer clause 5.0 (j) of section VI.
90	Design specification Fire Fighting system (Doc. No.: PC183-E-4013-SEC VI-Annex 2.1)	4 of 14	4.1	Fire water network	We understand to consider fire water system aboveground around the flare unit.	All required fire water facilities inside vendor's battery limit shall be in bidder's scope. However, tapping for required fire water from the existing ring header network shall be in bidder's scope alongwith all the required fittings, isolation valve etc.
91	Design philosophy – Civil & Structural works (Doc. No.: PC183-E-4013-SEC VI-Annex-4)	10 of 21	2.6	Wind loads for derrick structural design	For structural design calculation, we understand to consider Wind loads will be calculated in accordance with IS 875 Part 3 and the following: • Basic wind speed, Vb = 50 m/sec. • Risk Coefficient (k1) = 1.0 • Terrain factor (k2): As per IS 875 (Part-3) and Terrain category 2 • Topography factor (k3): 1.0 • Importance factor (k4): 1.0 Please review & confirm.	Noted. However, it shall be finalized at the time of detail engg. stage.
92		19 of 21	5.5	Limiting Deflection	Considering the application (flare supporting structure), maximum allowable horizontal deflection of H/200 is referred as commonly used factor for such structures. Please review & confirm.	As per NIT
93		--	--	Steel grade	For the flare derrick structure, we propose to use structure grade materials as below: a) Tubular sections for Main legs up to diameter 4 inch to 14 inch IS 1161 grade YST 310. b) Fabricated tubular section above 14 inch & plates sections from IS 2062 grade E 250 plates. c) Structural shapes (angles/channels etc) IS 2062 grade E 250. Trust the above will be acceptable.	It shall be finalized at the time of detail engg. stage.
94	Schematic Arrangement for Flare System Package (OSBL) (Drg. No.: PC183-7517-0046)	-	Note 1	LPG Manifold	We understand to provide LPG Manifold system as back-up of fuel gas for each Flame Front Generator (FFG) Panel. However, LPG cylinders shall be excluded from our scope. Please confirm.	NIT shall prevail. LPG cylinders, LPG manifold along with necessary instrumentation and controls is in bidder's scope. Flare tip pilot shall remain lighted during fuel gas failure. This will be accomplished through fuel gas backup through LPG cylinders coming online AUTOMATICALLY.
95		-	Note-3	Drain Connection	We understand to connect all the drain from the system to single Tie-in point as indicated in "Plot Plan of Proposed Integrated Coal Fertiliser & Chemical Complex (Drg. No.: PC183-0000-0001)" at approx. 35m from flare area. Please confirm.	Bidder understanding is correct. However, Tie in connections are under review and shall be provided shortly.
96		-	Note-7	Condensate in Flare Gas incoming line	Please confirm the presence of condensate in the incoming flare gas stream at Vendor's B/L. to decide the nos. of flare KO Drum to be provided.	Composition of flare streams going to respective flare stacks via respective KODs. Based on the composition in table-1 and resultant condensate bidder to size the KODs for the respective flare stacks and its pump.
97		-	Note-9	LP Steam tracing for Ammonia Boot Leg	We are not clear on this requirement, please clarify.	Bidder to ask specific requirement. As possibility of liquid Ammonia, if any may be possible, so LP steam tracing shall be required.
98		-	Note-11	Redundant Power Supply	Please specify the properties of redundant power supply for FFG panel.	Dual Redundant standby configuration with automatic changeover. • Dual Redundant 110 V AC, 50 Hz
99	Schematic Arrangement for Flare System Package (OSBL) (Drg. No.: PC183-7517-0046)	-	Note-12	Ultrasonic Flow meter with transmitter	Please confirm the nos. of Ultrasonic Flow meter with Transmitter to be provided. Also, please note that basis for selection between Single or Dual path ultrasonic flow meter is not provided. Considering the range of flow, accuracy shall be within 2-5% and repeatability shall be 2%. Linearity is not applicable. Also, No. of Analogue output is not specified for Ultrasonic flow meter. Please review & provide any technical specifications & datasheet of Ultrasonic flow meter.	No. of Ultrasonic Flow meter shall be provided during detail engineering. Dual path UF shall be considered.
100		-	Note-14	Number of Flare Stack	We understand to consider three numbers of flare stacks i.e. HP/SYN Gas Flare Stack, Ammonia Flare Stack & Acid Gas Flare Stack in our scope as indicated in schematic diagram. Please confirm.	Based on the composition mentioned in table-1, we had envisaged three stacks namely HP/SYN Gas Flare Stack, Ammonia Flare Stack & Acid Gas Flare Stack. However, based on the provided composition bidder may also check and decide the required number of stacks.
101	General Query	-	-	HAZOP Study	We understand that conducting HAZOP Study is excluded from our scope of work; we will require to participate only. Please confirm.	HAZOP study is in package vendor's scope.
102				Tempurge System	Kindly confirm Tempurge system line location on Nitrogen header or any other location.	NIT shall be prevailed. Refer section 2.1 (page 5) alongwith Schematic cum P&ID
103				KOD location	If we have to prepared layout as per OISD 118 then please confirm the KOD location.	As per bidder's engineering within their package battery limit.
104				FFG location	Please confirm the location of FFG Ignition system in the plot plan.	As per bidder's engineering within their package battery limit.
105				Pressure drop	Kindly confirm the allowable pressure drop for Dry acid flare gas, Ammonia flare stack & HP/Syn gas flare stack.	Refer table-4 of sec-VI of the NIT for available pressure at vendor's battery limit. Accordingly, vendor to decide the pressure drop for respective flare stacks.
106				KOD condensate percentage	Kindly confirm the KOD condensate percentage according to that we will design the KOD & its pump.	Composition of flare streams going to respective flare stacks via respective KODs. Based on the composition mentioned in table-1 & resulting condensate bidder to size the KODs for the respective flare stacks and its pump.
107				Process Tie in Point	Kindly provide us the exact location of process, utilities tie in points in the plot plan. According to PID & layout all tie points is at 100 meter kindly check & confirm (Drawing no - PC183-0000-0001)	Battery limit is marked in plot plan, which is 35m from the flare centre line as marked.
108				Derrick structure	Kindly confirm the Derrick structure is triangular or Rectangular.	Shall be decided during detail engg. However, rectangular shall be preferred.
109				Preliminary data	According to document no PC 183 - E-4013-SECTION VI Table 5 page number 14 of 34 note 2 it is mentioned data provided in table is preliminary may be change based on the inputs received ISBL contractor & shall be confirmed during detail engineering if in detail engineering flow rate change then flare system sizes also change please check & confirm.	Data received from ISBL contractor alongwith the notes mentioned. However ISBL contractor has considered adequate margins, hence bidder may consider mentioned tables. Amendment if required shall be issued, accordingly.
110				Dispersion analysis & study report of emission	According to document no PC 183 - E-4013-SECTION VI page number 351 of 1215 supplier has to provide dispersion analysis & study report of emission please confirm it is for all gases or specific ?	Specially for HCN laden & sour gases. However, bidder has to perform it for all required flare emissions for the respective flare stacks to meet the PCB norms.
111				Flare tip	According to document no PC 183 - E-4013-SECTION VI page number 353 of 1215 it is clearly mentioned tip size more than 900 mm diameter shall have molecular seal fitted up stream of the tip please explain.	NIT shall prevail.
112				Radiation	Radiation to be limited to 5424BTU/FT2/hr at a stack base & 1200 btu/hr/ft2/hr above 10 meter ground level. Kindly confirm.	Refer clause 6.0 of sec-VI of the NIT.
113				Radiation calculation	The radiation calculation shall be performed considering wind velocity of 10 m/s, tau as 1 and f-factor as 0.1. Kindly confirm	NIT shall prevail.
114				Flare header, utility piping elevation	Kindly confirm the flare header and utility piping elevation.	Refer section M-M. (Attachement-1) however sequencing and elevation may change during detail engineering.
115				CIVIL scope	Civil scope of land development in flare area like. Tree cutting, leveling etc is in supplier scope or client scope.	Kindly refer NIT. Fairly Graded land shall be provided to the CONTRACTOR. However, micro-grading up to approx. 300 mm / as required shall be done by the bidders in their respective areas. Layout of Balance Land development Plan of plant area showing various graded levels is attached with the Tender for reference.
116				LTCS & KCS Material	Kindly confirm the LTCS & KCS Material grade.	As per Bidders engineering based on NIT conditions.
117				KOD material	According to document no PC 183 - E-4013-SECTION VI page number 1120 of 1215 For Pressure vessel design the material given as SA 516 GR.60, instead of that can we proceed with SA 516 gr.70, please confirm.	NIT shall prevail.
118				FFG skid Ignition & contineous piping	All interconnecting piping between FFG skid & pilots are considered as SA 106 GR.B, please confirm.	Bidder shall provide their all facilities as per requirement of their engineering within their package battery limit based on NIT conditions.
119				Type of ignition system	Please confirm the type of ignition system (Manual/Auto).	Bidder's query is not clear, please elaborate.
120				SRU KOD scope	The SRU flare KOD scope & MOC please confirm.	NIT shall prevail

121				Piping material specification	Kindly confirm the Piping material specification for flare headers.	For PMS refer SEC VI-ANNEX 2
122				Acid gas KOD	On PID two Acid gas KOD shown kindly check & confirm.	NIT shall prevail.
123				Acid gas Stack	We will consider acid gas flare stack moc as SS316L please confirm.	NIT shall prevail.
124			-	Enclosures	Material for enclosure in Hazardous area considered LM6 (Die cast aluminum). Please confirm.	Bidder's query is not clear. May please elaborate. Material of enclosure of all the electrical equipments are specified in the NIT (refer Design Philosophy-Electrical).
125			PC183-E-4013-SEC VI-9.0, Page 17 of 51 PC183-E-4013-SEC VI, Page 17 of 34	IR CCTV	1) Existing CCTV network details & Panel location and distance required for integration. Please share. 2) Please confirm the Qty. of CCTV.	Quantity of CCTV and Existing CCTV network for integration shall be provided during detail engineering.
126			-	Certifications	We have considered PECO/CCOE/CMRI certification for Enclosure & Instruments. Please confirm.	Noted.
127			PC183-E-4013-SEC VI-9.0, Page 10 of 51	Area Classification	We have considered Zone 2, group IIC, T6 Hazardous area classification for E&I items.. Please confirm.	Noted.
128			-	Area Lighting	Lighting at stack & Skid nearby are not in our scope of supply. Please confirm.	Complete lighting within the battery limit shall be in the scope of the bidder.
129			PC183-E-4013-SEC VI, Page 27 of 34 PC183-E-4013-SEC VI-9.0, Page 23 of 51	Thermocouple	In doc. No. PC183-E-4013-SEC VI, Page 27 of 34 mentioned 2 nos. of thermocouple to be provided for each pilot & doc. PC183-E-4013-SEC VI-9.0, Page 23 of 51 One number Duplex K Type Thermocouple for each pilot. Please confirm the no. of thermocouple for each pilot.	2 nos. of thermocouple to be provided for each pilot.
130			PC183-E-4013-SEC VI-9.0, Page 31 of 51	Instrumentation Cable Tray	Aluminum perforated cable trays considered. Please confirm.	Noted.
131			PC183-E-4013-SEC VI-Annex I, Page 11 of 26	Electrical Cable Tray	Hot dip galvanized steel cable trays considered. Please confirm.	Noted.
132			PC183-E-4013-SEC VI-9.0, Page 5 of 51	Power Supply	240 VAC, single phase 50 Hz UPS power supply provided by client for FFG panel & ACWL. We have checked location of Offsite & Utilities Substation location in the plot plan & the same is not found. Please share the location.	Owner will provide UPS power supply 2 nos. feeders at 240V and 1 Nos. feeder at 115V from nearby control room and further distribution shall be in LSTK Contractor's scope. Power for Lighting and other Electrical Loads shall be tapped from Switchboards located at Cooling Tower MCC Room. Bidder shall indicate details of loads in Technical Bid itself, so that suitable feeders can be considered at Owner's Switchboards at Cooling Tower MCC Room. Tapping of power supply from owner's feeder (including supply of all required material), structural supports for cable tray, cable trays, cables, cable termination etc. shall be in LSTK Contractor's scope. Further distribution to equipment through proper type and size of cables, their supply, erection, testing and commissioning etc. shall be in LSTK Contractor's scope. Refer Plot Plan for the location of the substation.
133			-	Flow Transmitter	We will provide Ultrasonic Flow transmitter at the outlet of common flare header & separate flow transmitter for flare lines which goes to flare stack directly. Please confirm.	Noted.
134			-	PLC/DCS System	Please share existing PLC/DCS System details for implementing the logic of tempurge & KOD. We will implement the logic in the existing system, However any additional material if required, the same is in Customer scope.	Scope of Supply of PLC shall be in Bidder scope. All Logics shall be implemented in the PLC supplied by Bidder. PLC shall be installed in CCR-2 i.e. Ammonia Urea control room.
135			PC183-E-4013-SEC VI, Page 17 of 34	Knock-out drum	Knock-out drum operation will be done from customer PLC/DCS. Please confirm.	Knock Out Drum operation shall be done via PLC supplied by Bidder.
136			PC183-E-4013-SEC VI, Page 28 of 34	FFG Signals	FFG System signal goes to relay based Flame Front Generator panel. From FFG panel hardware (Pot free) contact provided to PLC/DCS to controlling & monitoring purpose. Rest all signal directly goes to customer PLC/DCS.	FFG panel hardware contacts shall be provided to PLC supplied by Bidder. In addition to that, all other signal of instruments shall be connected to the same PLC.
137			PC183-E-4013-SEC VI-9.0, Page 3 of 51	PLC/DCS System	As per the scope of supply, separate PLC system for flare package is not required, since the same is adequate in the existing customer PLC/DCS. But in Instrumentation specification separate plc FOR Flare system asked. Please confirm.	Separate PLC system shall be required.
138			-	Ignition SKID	Please confirm common ignition skid or separate ignition skid for each flare required.	separate ignition skid for each flare shall be required
139			PC183-E-4013-SEC VI, Page 28 of 34	Ignition line	We will provide separate ignition line for each burner, However we will provide common ignition channer on the SKID. For each flare.	separate ignition skid for each flare shall be required. NIT shall prevail.
140		6 of 34	Table-1	HP Flare Gas from A&U Plant	As per the Table-1, two different compositions are provided for HP Flare Gas from A&U Plant. Hence, we request you to please confirm the composition to be considered for flow rate of 203131 kg/hr. & for 266200 kg/hr.	Typical(case 1): H2: 74.76(min), N2: 24.94(min), Hg: 1ppmv (max), Ar: 30 ppmv(max), CO + CO2+ other Oxygen bearing components: 5 ppmv (Max.) Or Typical(case 2): H2: 0.04, N2: 0.02, Ar: 0.01, NH3:99.93 Typical(combined case 1 & 2): H2: 49.95, N2: 16.67, Ar: 0.01, NH3:33.39 Bidder has to consider the worst case. Amendment shall be issued accordingly if required for Table-1 for composition of HP flare stream coming from Ammonia & Urea ISBL (as defined above).
141	Technical Specification for Supply, Installation, Testing & Commissioning of Flare System (Document No.: PC183-E-4013-SEC IV)	14 of 34	Table-5	Sr. no 1 & 2	As per the remarks provided for sr. no 1 of Table-5, we understand that flow of 52142 kg/hr. from Fuel Gas header will not be con-current during emergency / Intermittent flow of 424038 kg/hr. from HP Flare gas header. Hence, Flow of 424038 kg/hr. will not be additive with fuel gas header flow of 52142 kg/hr. Please confirm.	Bidder understanding is correct.
142		14 of 34	Table-5	Sr. no. 7 & 9	As per the continuous flow rate provided for Wet Acid flare gas & Dry Acid flare gas in sr. no 7 & 9 of Table-5, we understand that flow from Wet Acid flare gas (6240.3 kg/hr.) & Dry Acid flare gas (15832 kg/hr.) will not be con-current. And the same is considered for the design of Acid Flare System. If the simultaneous flow to be considered, we request you to please provide the operating conditions of the mixture i.e. mixture composition, operating pressure, operating temperature etc.	Refer Table-5 for both the flare stream. Wet acid & Dry acid flare stream are continuous and can happen simultaneous with SRU flare stream. Bidder to size respective flare stack for the simultaneous flaring flow. Individual stream details of wet acid flare, dry acid flare & SRU flare is mentioned in table-1. Referring Table-1, Bidder has to perform required calculation for mixture composition & operating conditions at their B/L.
143		16 of 34	4	Scope of Work/Supply	We request you to please provide the minimum dimensions i.e. diameter & length to be considered for each Flare Knock out Drum along with liquid content in incoming flare header line for sizing of the KOD.	Shall be finalized during detail engineering.
144		21 of 34	6.1 (ii)	Radiation Intensity	We understand to consider the radiation limits as stipulated in this clause. However, we request you to please advise if simultaneous flaring of all three flares at peak load (266200 kg/hr. for Ammonia Flare, 424038 kg/hr. for HP/Syn. Gas Flare, 15832 kg/hr. for Acid Gas Flare System) to be considered for calculation of flare radiation intensity.	Ammonia flare peak load shall be 295273 kg/hr (266200+29073=295273 kg/hr). Simultaneous flaring case is under review for calculation of flare radiation intensity by bidder. Amendment shall be issued, if required.
145		24 of 34	6.3.4	Knock-out Drum	We propose to consider Vertical orientation of Knock out drum forHP Flare Gas header from CGP (For HP/Syn. Flare System). Please review & confirm.	Shall be finalized during detail engineering.
146	Design Philosophy – Civil & Structural Works (Doc. No.: PC183-4013-SEC VI-ANNEX-4)	17 of 21	5.1	General / Design Methods	Referred section mentions about having 1mm corrosion allowance for structural steel. Kindly confirm if Anchor Bolt should be also considered with same corrosion allowance	NIT does not specify corrosion allowance to anchor bolts. However, Bidder to provide as per design and environmental requirements.
147		18 of 21	5.3	Steel Grade	We propose to use E350 grade steel for larger diameter Rolled Tubular (tube made by rolling plates). Request you to please review & confirm.	As per NIT, Tubular steel shall conforming to minimum Yst 310 (as per IS: 1161 & 4 IS: 4923). So, E350 grade steel can be used.